UNIVERSIDAD DE PUERTO RICO
Recinto de Cayey
Decanato de Asuntos Académicos
Centro Académico de Cómputos

10 de marzo de 1997

Miembros Comité de Informática y Telecomunicaciones

Prof. Carlos A. Rivera Morales
Director

ACTUALIZACIÓN DE SISTEMA DE COMPUTADORA PARA OFRECER SERVICIOS A LA FACULTAD Y COMUNIDAD ESTUDIANTIL

En comunicaciones dirigidas al Sr. Rector los días 11 de julio de 1996 y 31 de enero de 1997 le expresé la conveniencia de reemplazar la computadora Vax 3300, usualmente conocida por la Vax Académica o cucac por una de tecnología reciente. Dicha computadora es de tecnología de, al menos, ocho (8) años de antigüedad. Como es de conocimiento general, en el campo de las computadoras ocurren cambios regulares de forma acelerada. Por lo tanto, este equipo es uno obsoleto.

Solicito que los miembros del Comité de Informática y Telecomunicaciones estudien el contenido de las comunicaciones que se incluye:

- PROPUESTA PARA SERVIDOR DE SERVICIOS MÚLTIPLES
  - 11 de julio de 1996

- PROPUESTA PARA MIGRACIÓN DE TERMINALES A MICROCOMPUTADORAS EN LA SALA 212 DEL EDIFICIO DE INFORMÁTICA
  - 31 de enero de 1997

con el propósito que se eleve a la brevedad posible una petición formal a la Oficina de Sistemas de Información a nivel central o que se identifiquen fondos para costearla localmente. El propósito fundamental de la migración es mejorar los servicios actuales que se le ofrecen a la facultad y al estudiantado y añadir otros basados en interfases gráficas. En las comunicaciones mencionadas se listan algunos de los usos proyectados para ese tipo de sistema y algunas justificaciones. A continuación se listan otras justificaciones.

1. Alto costo de mantenimiento por un sistema absoleto
   - Configuración básica de la Vax 3300 (cucac)
     - 30 MB en RAM
     - 20Mhz
   - Costo contrato de mantenimiento y programas
     - $1,1150.16 anual
       - Información suministrada por OTI

2. Contamos con personal adiestrado en WindowsNT
    - Jan K. Figueroa, Alberto Santiago
        - Programación Workstation
        - Programación Server

3. Estar a la vanguardia en el uso de los servicios/programación relacionada con la Internet
    - Servidores/clientes del Web
    - Servidores/clientes ftp
    - Servidores/clientes de correo electrónico (interfase gráfica)
    - DNS (*Domain Name Service)*

4. La tendencia actual es utilizar programados que corren en la plataforma Windows NT mediante el modelo cliente/servidor.

5. Mejorar la calidad de los servicios ofrecidos a los estudiantes y facultad.
    - Uso de interfases gráficas vs texto

Aunque en las propuestas originales se menciona una computadora modelo *HP NetServer LS Series* manufacturada por la compañía Hewlett Packard, entendemos que el modelo AlphaServer 400 de la compañía Digital también puede servir para esos propósitos. Se incluye información de dicho sistema.

A. 1. 11

UNIVERSIDAD DE PUERTO RICO
Colegio Universitario de Cayey
Centro Académico de Cómputos

11 de julio de 1996

Prof. José Luis Monserrate Vilá
Rector

P/C Dra. Carmen L. Quiroga
Decana
Asuntos Académicos

Prof. Carlos A. Rivera Morales
Director

PROPUESTA PARA MIGRACIÓN DE TERMINALES A MICROCOMPUTADORAS EN LA SALA 212 DEL EDIFICIO DE INFORMÁTICA

En el Centro Académico de Cómputos queremos reemplazar la sala de terminales (Laboratorio 212) del edificio de Informática por una sala de microcomputadoras conectadas en red, sin que haya interrupción de los servicios que regularmente se ofrecen en ella, y añadir servicios nuevos para los estudiantes del Colegio Universitario de Cayey. En esta sala hay 30 terminales actualmente cuyo uso principal es solicitar servicios de una computadora Vax Modelo 3300, llamada usualmente la Vax académica. Los servicios que regularmente se solicitan son correo y teléfono electrónico, y para la parte práctica de cursos de programación dictados por el Departamento de Matemática-Física. Se consultó al respecto con los profesores del departamento antes mencionado que dictan cursos de programación de computadoras. Ellos manifestaron estar de acuerdo con la idea. Indicaron que para los estudiantes es mucho más práctico, versátil y productivo el programar haciendo uso de microcomputadoras, que programando mediante el sistema actual.

Configuración mínima de una microcomputadora:

- 16 MB RAM
- 850 MB en disco duro, mínimo
- Procesador: Pentium 133 mhz (mínimo)

Cantidad: 30

- Costo aproximado de una unidad $2,000.00

Sistema Operativo en cada microcomputadora:

- Windows NT Workstation 3.51 Englis Int'l 3.5"
    - Costo de una licencia: $90.87
    - Licencias restantes (29) se obtendrán libre de costo mediante alianza Microsoft-UPR.
- Licencia para un cliente de Windows NT para conexión al servidor
    - Costo de una licencia: $19.18
    - Licencias restantes (29) se obtendrán libre de costo mediante alianza Microsoft-UPR.

Microcomputadora Servidor

- Cantidad: Una unidad
- HP Mulitprocessor server ($15,000.00, aprox.)
    - Se incluye documentación y justificación.(Ver anejos)

Servicios que ofrecerá la computadora servidor:

- servicio de impresión
- servidor Web
    - profesores pueden montar sus propias páginas para incluir material de sus cursos y establecer comunicación electrónica con sus estudiantes
- kiosko de informacion para los estudiantes
    - catálogo CUC
    - calendario académico
    - horario exámenes finales
    - reglamentos estudiantiles
    - cartelera electrónica
    - tablón de edictos electrónico
    - guía telefónica local y sistema UPR
    - información sobre programas y proyectos existentes en el CUC
        - Programa de Honor
        - Servicios Educativos
        - Upward Bound
        - MBRS
        - Howard Hughes
        - Estudios de la Mujer
        - Título III
    - Otros servicios
        - información sobre becas y ayudas económicas
- servidor ftp
    - se montará un banco de programados
        - educativos
            - *shareware*
            - *freeware*
            - dominio público
        - utilidades
            - *shareware*
            - *freeware*
            - dominio público
- servidor de correo electrónico

Programación a ser instalada en la computadora servidor:

- Servidor Windows NT versión 3.51 English Int'l AE CD ROM
  - Costo: $383.29
- Servidor WWW
  - Existen versiones académicas libre de costos
- Servidor ftp
  - Costo aproximado: $25.00
  - Es probable conseguir versiones académicas libre de costo
- Servidor de correo electrónico
  - Una posibilidad es BackOffice Server 2.0 English Int'n AE CD
    - Costo: $1,204.63

Uso principal del laboratorio 212:

- cursos de ciencias de computadoras
  - programación
  - análisis numérico
  - estructuras de datos
- cursos de estadística
- tutoriales
- conexión a la Internet
  - correo electrónico
  - ftp (file transfer protocol)
  - Worl Wide Web
  - gopher
  - telnet

Programación mínima en cada microcomputadora:

- Sistema operativo para ambiente de red local
  - Cliente Windows NT versión 3.51
- Clientes para accesar los servicios de Internet y correo electrónico.
  - libre de costo para uso académico
- Paquete Estadístico
  - A determinarse por los departamentos de Matemática-Física y Administración de Empresas.
- Lenguajes de programación
  - Visual Basic versión 4.0 Professional Edition
    - Disponemos de una licencia
    - Se hará uso de la alianza Microsoft-UPR para las licencias adicionales.
- Otros; a determinarse por el departamento de Matemática-Física.
- Tutoriales
  - Hay disponibles libre de costo
    - Curso Remedial de Matemática
    - Precálculo
    - Cálculo
    - Álgebra Lineal

Justificación de la migración:

- Vax 3300 (Vax Académica) tiene baja capacidad de procesamiento; tecnología con ocho años de antigüedad.
- Los procesos toman menos tiempo en completarse si los paquetes de programación y estadísticos se distribuyen en las microcomputadoras; el procesamiento no está totalmente centralizado.
- Uso de interfases gráficas vs interfase actual en texto para correo electrónico y otros servicios tales como ftp y telnet.

Nota: Los terminales de computadoras que actualmente están en el laboratorio 212 del edificio de Informática se utilizarán en adelante para el proceso de matrícula. Por lo tanto, se mantendrá el contrato de mantenimiento que actualmente se tiene con la compañía Digital con relación a esos terminales. Se continuará utilizando la Vax 3300 para dar servicios de correo electrónico y posiblemente otros servicios, hasta que se implante un nuevo de servicio de interfase gráfica. De esa forma, no se interrumpirán los servicios actuales.

Anejo 1

En la industria, la tendencia es migrar de minicomputadoras y mainframes a redes locales de computadoras. Las computadoras disponibles hoy dia tienen mas poder que las minicomputadoras de varios años atras. Como punto central, las redes locales giran alrededor de un "servidor". Este servidor brinda servicios de almacenamiento de archivos, servicios de impresion y aplicaciones ademas de acceso a bases de datos. Un buen servidor debe ser lo suficientemente grande y rapido como para poder dar servicio a cientos de usuarios al mismo tiempo.

Una alternativa disponible en el mercado es la serie LS de servidores Hewlett-Packard. La serie LS es la linea de mas alto rendimiento y mayor capacidad de expansion disponible. Servidores LS se pueden configurar con 1, 2, 3 o 4 procesadores Intel Pentium con velocidades desde 75 MHZ hasta 133 MHZ. Ademas acepta hasta 768 MB de memoria. Hewlett-Packard tiene disponible un UPS (uninterruptible power supply) que se intregra mediante programado al server para monitoreo y desactivacion en caso de emergencia.

La serie LS es completamente modular. Los procesadores estan contenidos en dos tarjetas separadas. Esto permite que se adquiera un servidor pequeño ,con un procesador, y se le sigan añadiendo procesadores segun aumente la demanda de servicios. Ademas permite reemplazar los procesadores por unidades mas avanzadas (ej. Pentium Pro) a un costo minimo, preservando la inversion en equipo, programado y tiempo. Otros equipos contienen los procesadores como parte del tablero principal, lo que impide o hace imposible aumentar o actualizar las capacidades del equipo a un costo bajo o sin tener que cambiar la unidad completa. La memoria tambien esta contenida en tarjetas separadas. Al igual que el procesador, se puede adquirir la memoria necesaria inicialmente y luego añadir mas memoria o tarjetas .

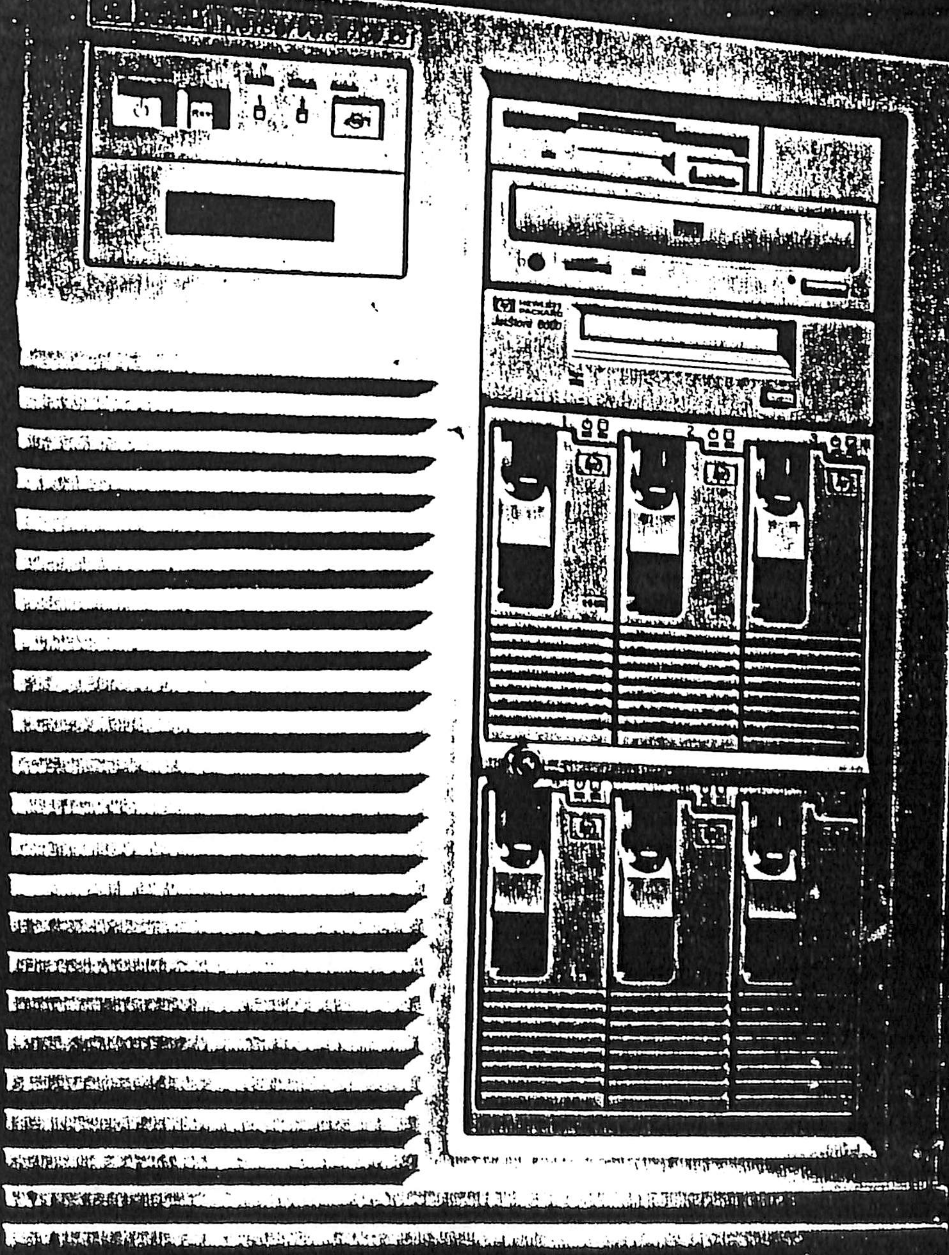
El almacenamiento masivo de informacion es un recurso importante en estos equipos. La serie LS cuenta con 6 bahias de discos duros "hot swap" y controladores RAID nivel 0,1, 5 y 6. Las bahias "hot swap" permiten cambiar discos duros defectuosos sin tener que apagar el equipo. La tecnologia RAID (redundant array of independent disks) se encarga de tener varias copias de la



HP NetServer LS Series

HP NetServer 5/75 LS
HP NetServer 5/75 LS2
HP NetServer 5/100 LS
HP NetServer 5/100 LS2
HP NetServer 5/100 LS4
HP NetServer 5/133 LS
HP NetServer 5/133 LS2
HP NetServer 5/133 LS4

Scalable servers for mission-critical applications



Next-Generation Servers Your Business Can Depend On

Does your network run applications that are critical to your business? If so, you can't take a chance on server downtime. With Hewlett-Packard's new HP NetServer LS, you don't have to. We've designed this high-end server to deliver high levels of manageability, availability, and performance — the capabilities that mission-critical environments require.

- **Manageability**: For easy installation, configuration, and administration, the HP NetServer LS comes standard with HP NetServer Navigator, a family of advanced server setup and management tools on a bootable CD-ROM.
- **Availability**: All models of the HP NetServer LS offer a new hot-swap disk subsystem with a dual SCSI backplane for internal disk duplexing. This subsystem can also be used with the new HP dual-channel PCI Disk Array Controller—enabling you to replace failed disks without compromising mission-critical application availability.
- **Performance**: Incorporating the industry-leading XXpress architecture and support for up to four-way symmetric multiprocessing, this server is optimized for performance in mission-critical environments.

HP NetServer LS Benefits and Features

Benefit	Product Feature
Servers that are easy to manage	• HP NetServer Navigator bootable CD-ROM with configuration, installation, and management tools; includes HP NetServer Assistant server management software for proactive alerting and problem resolution • Optional HP Remote Assistant card for remote diagnostics and environmental monitoring • Optional rack mount solutions to save space in a multi-server environment
Servers that maximize system availability	• HP Dual-channel PCI Disk Array (Fast and Wide SCSI-2) for superior data protection • "Hot-swap" feature allows continuous usage while replacing failed drive • Dual SCSI backplane for internal disk duplexing • ECC memory for checking, correcting, and reporting memory errors • Unattended, automatic reset and reboot upon NOS hang to get system back up and running quickly • Optional HP PowerWise UPS for maximum network protection • Service and support available from HP or authorized resellers
Servers that offer high performance	• Support for up to four-way symmetric multiprocessing on Pentium™/100 and Pentium/133 • XXpress architecture with clock-independent 64-bit system bus, dual PCI peer buses, and concurrent bus operation eliminates performance bottlenecks • 256-KB, 512-KB, and 1-MB external write-back caches • Integrated Dual PCI Fast and Wide SCSI-2 controllers • Fast disks and network cards for maximum I/O throughput

Configurations and Models

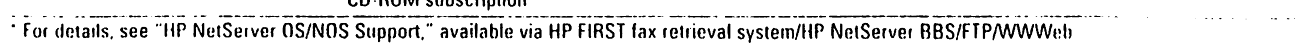
	Model	Processor	Cache	Hard Disk	Disk Array	ECC Memory	Product No.
HP NetServer 5/75 LS	Model 1	Pentium 75MHz	256KB	—	—	32MB	D3330A
	Model 1050	Pentium 75MHz	256KB	1.05GB	—	32MB	D3332A
	Model 1-Array	Pentium 75MHz	256KB	—	PCI Disk Array Controller	32MB	D3333A
HP NetServer 5/100 LS	Model 1	Pentium 100MHz	512KB	—	—	32MB	D3334A
	Model 1-Array	Pentium 100MHz	512KB	—	PCI Disk Array Controller	32MB	D3337A
	Model 4200A**	Pentium 100MHz	512KB	2x2.1GB	PCI Disk Array Controller	64MB	D3626A
	Model 8400A**	Pentium 100MHz	512KB	2x4.2GB	PCI Disk Array Controller	64MB	D3627A
HP NetServer 5/100 LS2	Model 1	Dual Pentium 100MHz	2x1MB	—	—	64MB	D3338A
	Model 1 Array	Dual Pentium 100MHz	2x1MB	—	PCI Disk Array Controller	64MB	D3339A
HP NetServer 5/100 LS4	Model 1	Quad Pentium 100MHz	4x1MB	—	—	64MB	D3338A + D3575A*
	Model 1-Array	Quad Pentium 100MHz	4x1MB	—	PCI Disk Array Controller	64MB	D3339A + D3575A*
HP NetServer 5/133 LS	Model 1	Pentium 133MHz	512KB	—	—	32MB	D3605A
	Model 1-Array	Pentium 133MHz	512KB	—	PCI Disk Array Controller	32MB	D3607A
	Model 4200A**	Pentium 133MHz	512KB	2x2.1GB	PCI Disk Array Controller	64MB	D3628A
	Model 8400A**	Pentium 133MHz	512KB	2x4.2GB	PCI Disk Array Controller	64MB	D3629A
HP NetServer 5/133 LS2	Model 1	Pentium 133MHz	2x1MB	—	—	64MB	D3608A
	Model 1 Array	Pentium 133MHz	2x1MB	—	PCI Disk Array Controller	64MB	D3609A
HP NetServer 5/133 LS4	Model 1	Pentium 133MHz	4x1MB	—	—	64MB	D3608A + D3614A*
	Model 1 Array	Pentium 133MHz	4x1MB	—	PCI Disk Array Controller	64MB	D3609A + D3614A*

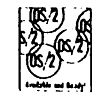
* Order an HP NetServer LS2 system and an equivalent speed customer-installable Dual Pentium SMP processor board.

** Available Fall '95

Product Features

Processor	**HP NetServer 5/75 LS**	Intel Pentium 75MHz
	HP NetServer 5/75 LS2	2 Intel Pentium 5/75 cards
	HP NetServer 5/100 LS	Intel Pentium 100MHz
	HP NetServer 5/100 LS2	Intel Pentium 100MHz Dual SMP card
	HP NetServer 5/100 LS4	2 Intel Pentium 100MHz Dual SMP cards
	HP NetServer 5/133 LS	Intel Pentium 133MHz
	HP NetServer 5/133 LS2	Intel Pentium 133MHz Dual SMP card
	HP NetServer 5/133 LS4	2 Intel Pentium 133MHz Dual SMP cards
Processor Upgrade Slots	Two processor card slots to accommodate Pentium/75, Pentium/100, Dual Pentium/100 SMP, Pentium/133, and Dual Pentium/133 processor boards and board upgrades	
ECC Memory	32 MB on 5/75 LS, 5/100 LS, and 5/133 LS Models 1 and 1-Array; 64 MB on 5/100 LS2, 5/133 LS2, 5/100 LS Model 4200, and 5/100 LS Model 8400, expandable to 768 MB with industry-standard 32-MB SIMMs	
Cache	**HP NetServer 5/75 LS**	256-KB write-back
	HP NetServer 5/100 LS	512-KB write-back
	HP NetServer 5/100 LS2	2-MB (1-MB write back for each processor)
	HP NetServer 5/133 LS	512-KB write-back
	HP NetServer 5/133 LS2	2-MB (1-MB write-back for each processor)
Expansion Slots	Up to 9 bus master slots (3 PCI, 4 EISA, and 2 shared) when one processor slot used Up to 8 bus master slots (2 PCI, 4 EISA, and 2 shared) when two processor slots used	
HP Disk Array (with Model 1-Array)	PCI Disk Array Controller with dual Fast and Wide SCSI-2 channels, based on i960 processor with 4-MB cache Hot-swap and hot spare capabilities Support for RAID 0, 1, 5, 6 (logical combination of RAID 0 and 1)	
Video	Integrated 1024x768, 16-color, non-interlaced 512-KB standard video memory (upgradable to 1 MB) Super VGA drivers available with operating system or from HP electronic support services	
SCSI	Two PCI Fast and Wide SCSI-2 controllers, integrated on system board	
Mass Storage Shelves	Eight front-accessible, half-height shelves: 1 for CD-ROM (included), 1 standard half-height, 6 hot swap shelves (must use hot-swap drives); one 3.5-inch flexible disk drive	
Flexible Disk Drive	3.5-inch, 1.44-MB included on all models	
CD-ROM	SCSI-2, tray-load, quad-speed, 190-ms average access time (full-stroke) included on all models	
Built-in I/O Ports	External PCI Fast and Wide SCSI-2 port (included on Model 1-Array only), one 25-pin parallel port, two 9-pin RS-232 serial ports, video port, mini-DIN keyboard and mouse	
HP NetServer Navigator CD-ROM	Bootable CD-ROM with tools to configure, install, and manage the HP NetServer LS, includes these "Assistant" products	
HP Configuration Assistant	Automated, menu-driven installation and configuration application that helps you install, configure/reconfigure, and optimize the performance of the HP NetServer LS	
HP NetServer Assistant 2.2	Server management software that provides monitoring, proactive alerting, and problem identification for subsystems such as SCSI controllers, hard disk drives, ECC memory, and uninterruptible power supplies, includes HP OpenView for Windows™ network management platform	
HP Information Assistant	Intelligent information retrieval system for quick access to information on HP NetServers and accessories, network operating system installation and tuning, and product service and support	
HP Diagnostic Assistant	Easy-to-use diagnostic tool for system vertification and rapid troubleshooting of hardware issues, such as incorrect SCSI cabling/termination	
Supported Operating Systems*	Banyan® VINES® IBM® OS/2® Warp and LAN Server Microsoft® MS-DOS®	Microsoft Windows NT™ Server Novell NetWare®, Novell NetWare SFT™ III, Novell UnixWare SCO® Open Desktop™/Open Server™, SCO UNIX®
Supported SMP Operating Systems	IBM OS/2 SMP and LAN Server, Microsoft Windows NT Server, Novell UnixWare, SCO MPX™	
HP Advanced Cooling System	Dual fans provide extra cooling for internal components; superior air-flow design	
Security	Startup password Network server mode Keyboard lock button with optional screen blanking Timed keyboard, power, and reset switch lock EISA configuration protection password Enable or disable serial port, flexible disk drives, and write operations to flexible disk drive Provision for padlock or cable lock	
Service and Support	3-year, next business-day, on-site limited warranty from HP or authorized resellers (standard business hours) Optional 4-hour response during standard business hours or 7 days/week, 24 hours/day available as HP SupportPack from resellers Free telephone support for basic setup, installation, and troubleshooting in U.S., Canada, and Europe during warranty Network phone-in support (advanced NOS and network support) available in U.S., Canada, Europe, and Australia as optional HP SupportPack from resellers HP NetServer Compatibility Evaluation Guarantee	
Easy Access to Technical Information	Drivers, utilities, and technical tips and tricks available via HP NetServer BBS, FTP, CompuServe, and WWWeb Complete technical documentation and system-level information available via HP Support Assistant CD-ROM subscription	


* For details, see "HP NetServer OS/NOS Support," available via HP FIRST fax retrieval system/HP NetServer BBS/FTP/WWWeb





tional Accessories†

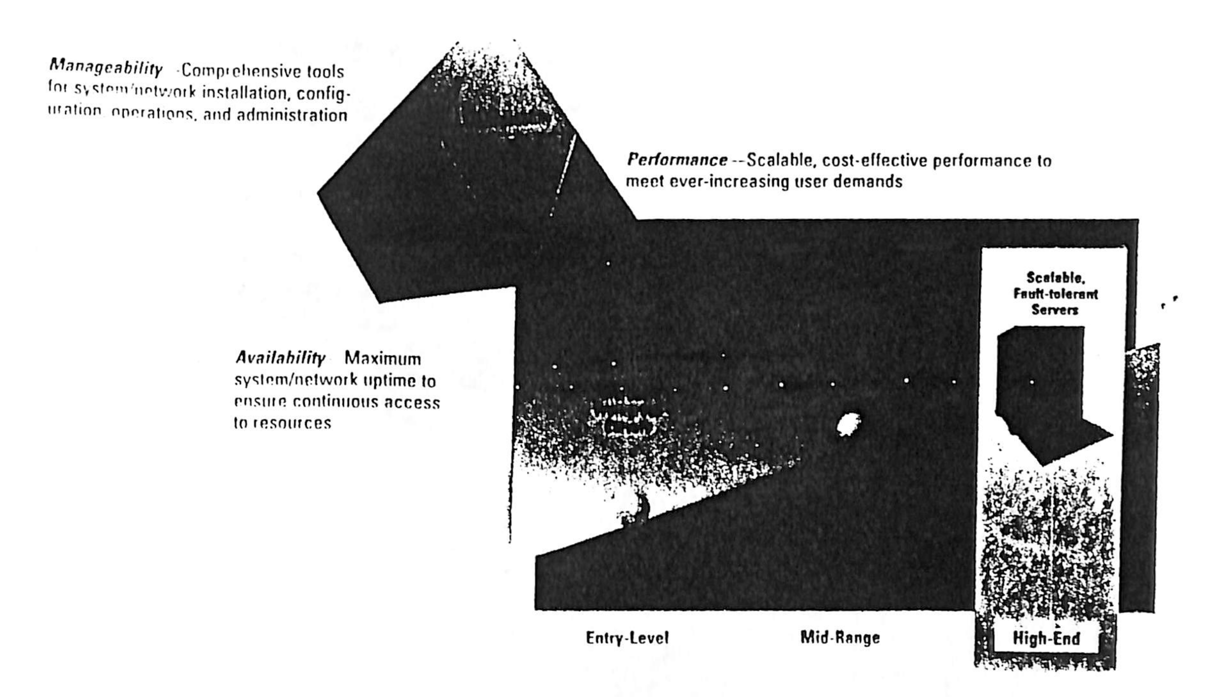
	Option	Product No.
ry	4-MB SIMM (70-ns)	D2974A
	8-MB SIMM (70-ns)	D3577A
	16 MB SIMM (70-ns)	D2297A
	32-MB SIMM (70-ns)	D3578A
	ECC Memory Expansion card (12 SIMM sockets)	D2971B
e Devices	270-MB IDE hard disk (<12-ms seek time) (must order D2198A mounting tray)	D2388A
	1.05-GB hot-swap Fast SCSI-2 disk module	D3581A
	2.1-GB hot-swap Fast SCSI-2 disk module	D3582A
	4.2-GB hot-swap Fast SCSI-2 disk module	D3583A*
	CD-ROM (internal SCSI-2, tray-load, quad-speed, 190-ms average access time)	D2992B
	HP SureStore Tape 6000i Internal DAT Drive	C1528F
	HP SureStore Tape 5000i Internal DAT Drive	C1526F
	HP SureStore Tape 2000i Internal DAT Drive	C1525F
	3.5-inch hard disk drive mounting trays (3-pack—not hot-swap)	D2198A
	Tape/DAT/CD-ROM mounting trays (3-pack—no front panel)	D2199A
	Hot-swap hard disk mounting tray (for selected non-HP drives only; refer to HP electronic services for supported drives)	D3349A
	SCSI Cable Kit	D3330-60010
Controller	EISA Fast SCSI-2 Controller	D2078B
ray Controller	PCI Disk Array Controller Adapter with dual Fast and Wide SCSI-2 channels	C3610A
	HP EISA Disk Array Controller Adapter with dual Fast SCSI-2 channels	C3609A
nal Storage Solutions	HP Disk System; 5 pluggable bays with (1) 1.0 GB Fast SCSI-2 disk module	C3601B
	HP Disk System; 5 pluggable bays with (1) 2.0 GB Fast SCSI-2 disk module	C3602B
	1.0 GB hot-swap Fast SCSI-2 disk module	C3305A
	2.0 GB hot-swap Fast SCSI-2 disk module	C3306A
ssor Board Upgrades	Pentium/75	D3573A
	Pentium/100	D3574A
	Dual Pentium/100 SMP	D3575A
	Pentium/133	D3613A
	Dual Pentium/133 SMP	D3614A
ors	HP Super VGA Display, 14-inch	D2804A
	HP Monochrome VGA Display, 14 inch	D2801A
k Cards	HP 10/100VG Selectable PCI Adapter	J2585A
	HP 10/100VG Selectable EISA Adapter	J2577A
mote Assistant	EISA server management card for remote diagnostics and environmental monitoring:	
	For U.S./Canada/Latin American countries (includes modem)	D2968B
	For other countries (no modem)	D2967B
werWise UPS**	HP PowerWise UPS 1000VA (120V)	C4275A
	HP PowerWise UPS 2100VA (120V)	C4276A
	HP PowerWise UPS 900VA (120V)	C4776A
	Refer to HP PowerWise UPS Data Sheets (5963-3606E, 5963-6722E) for software and accessory information	
Server Racks and Accessories	2-meter rack with side panels and rear doors	J1450A
	2-meter rack only	J1450A option AXH
	8 port HP Console Switchbox	J1460A
	HP NetServer LS Rack Mount Kit	J1451A
	For additional information on HP NetServer Rack solutions, call HP FIRST fax retrieval system at 1-800-333-1917 and request document #7433	
Documentation	Service Manual (also on HP NetServer Navigator CD-ROM)	D3330-90001
	Video Training Kit	D3330-60003

se see the HP NetServer Configuration Guide for important technical information when choosing your accessories.

lable 03/1995

ble in North America and Europe only

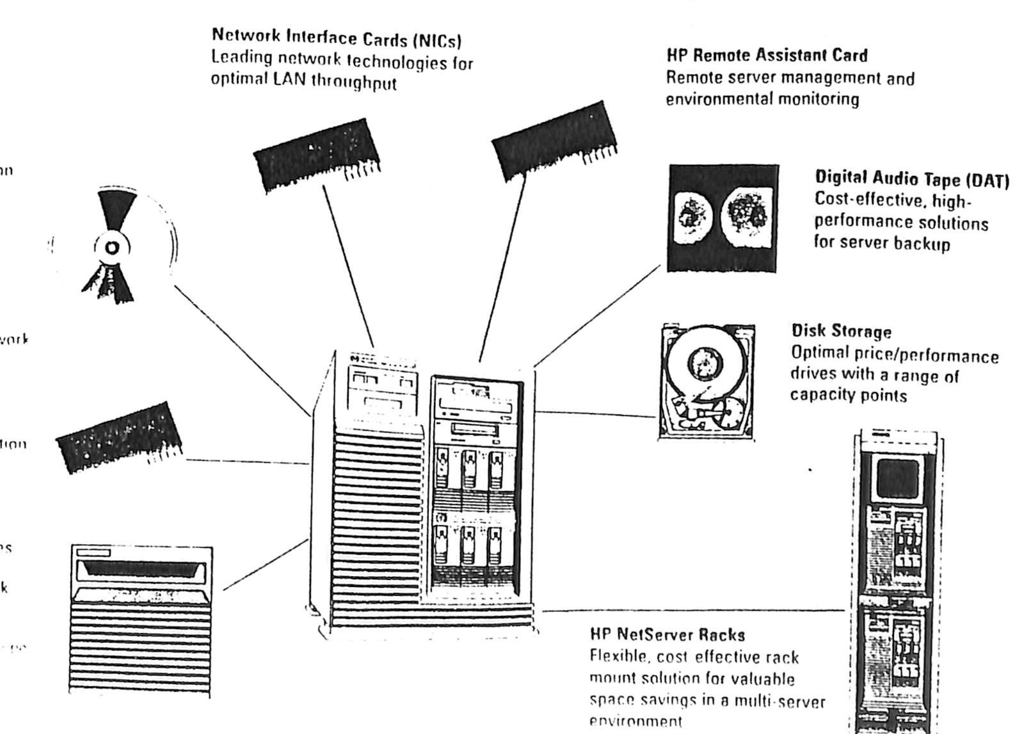
A Generation Ahead: HP Manageability, Availability, Performance



MAP serves as HP's set of guiding principles in the development of HP NetServers

A Comprehensive System Solution

There's more to HP networking than servers. HP offers a comprehensive system solution—from servers to storage, from network interface cards (NIC's) to racks. These products are designed and optimized for HP NetServers to provide you the highest levels of manageability, availability, and performance.



* Available in North America and Europe



HP NetServer LS

1-2 ECC memory cards (up to 384 MB on each card)

1-2 processor cards

1 MB write-back cache per processor on dual 100- or 133 MHz processor cards

1-, 2-, or 4-way Pentium 100 or 133-MHz symmetric multiprocessors

Technical information labels and diagnostic diskette

470-watt power supply

1.44-MB floppy drive

CD-ROM

Rear panel
- 2 serial ports
- Parallel port
- Video port

Dual PCI Peer Buses
- 2-3 PCI bus master I/O slots
- 4 EISA bus master I/O slots
- 2 PCI/EISA shared I/O slots

Up to 6 hot-swap disk modules

2 integrated PCI Fast and Wide SCSI-2 controllers

Control panel
- Keyboard lock
- Reset button
- On/off switch
- Customizable LCD

2 Fast and Wide SCSI 2 connectors

Fans

Regulatory Compliance

Electromagnetic Compliance
CISPR 22 Class B (International)
EN 55022 Class B (EU Countries)
EN50082-1, Generic Immunity (EU Countries), incl.:
• IEC 801-2, ESD
• IEC 801-3, RI
• IEC 801-4, FT
FCC Class B Verified (USA)*
M of C Class A (Korea)
VCCI Class 2 (Japan)
Safety Compliance
CSA Certified (Canada, File LR374270)
EN 60950 Compliance (International)
NOM (Mexico)
TÜV Certified (Germany)
UL Listed (USA, File E139742)
Datacomm Compliance
Sweden

* FCC Class B grant pending (FCC ID B94HPLS104)

TSANet

intel inside pentium

Other Specifications

Operating Temperature	41 to 95 degrees F (5 to 35 degrees C)
Operating Humidity	20% to 80% non-condensing
Acoustic Emissions	Sound level (LpA): < 60 db(A)
Power Supply	Auto-ranging 90 to 135 VAC, or 180 to 265 VAC at 50-60Hz
Power Availability	470W continuous, 530W peak
Power Consumption	723W maximum with 110/220V supply, 815W peak with 110/220V supply
System Dimensions	19.3 inches high x 13.7 inches wide x 18.1 inches deep (49 cm x 34.8 cm x 46 cm)
System Weight	50-70 lbs (22.7-31.8 kg), depending on configuration

For Additional Information

HP WWWeb server	http://www.hp.com
HP NetServer FTP server	ftp.netserver.hp.com
HP NetServer BBS	1 408 553 3500
HP FIRST fax retrieval system	1 800 333 1917 (U.S.) 1 208 344 4809 (worldwide)

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HP Announces New, High-Performance Nerserver LS Series

New High-End NetServer Line from HP Combines 1 to 4-way Multiprocessing with Dual P Buses and Intel Pentium(tm) 133-MHz for Next-generation Performance Platform

June 12, 1995

"This new series is one of the first Pentium 133MHz multiprocessor series available in the industry,

- James P. McDonnell, Worldwide Marketing Manager of HP's Network Server Division.

Palo Alto, California - Hewlett-Packard Company today introduced the HP NetSe Series -- high-performance network servers scaleable from single-processor Int Pentium/75 systems to quad symmetric multiprocessor Pentium/100 and Pentiu systems with dual PCI Peer buses. These high-end multiprocessor servers provi scaleable, fault-tolerant platform for high-end, business-critical LAN environme

"This new series is one of the first Pentium 133MHz multiprocessor series availa industry, said James P. McDonnell, worldwide marketing manager of HP's Netw Division. "High-performance processors and a system architecture that's design the ground up deliver the performance needed to meet or beat the requirement most demanding businesses."

The HP NetServer LS2 5/100 and 5/133, HP's dual-processor Pentium models, c customers industry-leading price/performance. With TPC benchmarks that brea tpsB level, the NetServer LS2 5/100 achieved an outstanding 371 tpsB with an cost under $300 per tpsB. The NetServer LS2 5/133 delivered an impressive 41 the low cost of $259 per tpsB.

The introduction of the NetServer LS makes HP the first major computer vendo industry to offer a complete line of PCI servers for the LAN environment. PCI off the benefits of next-generation I/O performance. In addition, because the cost technology is less than that of EISA and because the plug-and-play features of the NetServer LS series much easier to configure and manage, both the cost of and the cost of ownership are reduced--especially important in an age of networking-technology proliferation. With the wide-scale deployment of networ technologies, these have rapidly become major customer needs in the industry being met by PCI technology.

Breakthrough System Performance

The NetServer LS architecture was designed from the ground up for high perfor The system offers a balanced I/O and CPU/memory system, industry leading pe and investment protection for customers:

* A 64-bit clock independent system bus - results in the highest performance p since each device on the bus operates at its own maximum clock speed.

* Dual PCI Peer buses - offer users industry-leading performance through an I/ architecture that uses concurrent PCI bus operation with intelligent I/O bufferin access to a 64-bit system bus.

* Dual, integrated PCI fast and wide SCSI-2 controllers - increase I/O performa implementing I/O parallelism with the increased bandwidth of wide SCSI.

* Dedicated Level 2 caches - offer industry-leading price/performance for custo deploying high-end multiprocessing servers through a standard, dedicated seco

cache of 1MB for each processor.

* MPS support - offers users the peace of mind that operating systems and app will conform to the industry's Multiprocessing Specification (MPS) today and in

Performance That's Highly Available for Critical Applications

The high performance of HP's NetServer LS Series includes fault-tolerant featur ensure data integrity and high system uptime to meet the high-availability requ of business-critical environments. The new hot-swap disk subsystem has a dual backplane that makes internal disk duplexing easy and allows the server to con working while failed drives are being replaced. This hot-swap subsystem also is with an intelligent bus for managing the subsystem and its hard drives.

NetServer LS array models offer a dual-channel PCI disk-array controller that s Fast and Wide SCSI drives in RAID levels 0, 1, 5 and 6. In addition to providing performance through PCI bus and better processor utilization, this PCI array co features the automatic hot-spare drive architecture which, in the event of a dri automatically reconstructs data on a spare drive.

In addition to these storage features, each system comes standard with Error C and Correcting (ECC) memory that is expandable to 768MB. The ECC memory i management capabilities that log memory errors and tell administrators that th take action. The NetServer LS Series also includes an Automatic Server Restart which automatically reactivates the server in the event that the network operat hangs.

Industry Alliances for Business-Critical Environments

The NetServer LS supports industry leading network operating systems includin VINES, IBM OS/2 Warp and LAN Server, Microsoft(R) Windows NT Server, Nove Novell UnixWare and SCO OpenServer. In addition, the NetServer LS Series will industry leading applications, such as Oracle 7, Sybase SQL Server, Microsoft B SAP-AG's R/3 and Lotus Notes.

"We believe the HP NetServer LS Series is the ideal power engine to support ve demanding applications, such as SAP-AG's R/3 running on Windows NT, said M "Such applications demand exceptional availability as well as easy-to-do netwo management because such applications are essential to the enterprise. Further, applications frequently involve data-center downsizing."

"With its NetServer line, which now includes the high-end NetServer LS Series, of the very few PC LAN server vendors that really can meet the demands of the system," said Gunther Tolkmit, SAP's vice president, Technology Marketing. "O long-standing partnership with HP, coupled with the strength of HP's expanding line and strong position in the Intel-based server market, is opening up broad opportunities for R/3 customers who have chosen Windows NT."

HP Makes Managing Servers Easy

Continuing with the popular HP server management solutions, the HP NetServe comes with the HP NetServer Navigator, a bootable CD-ROM with comprehensi easy-to-use tools that help users configure, install and manage their servers qu HP NetServer Navigator also includes the HP NetServer Assistant 2.2 server ma software for proactive alerting and problem resolution, including pre-failure dis For security, each HP NetServer LS Series has a power-on password-locking ke optional time-out and screen-blanking capability, and enable/disable capability port, floppy drive and switches. An optional HP Remote Assistant card provides comprehensive remote diagnostics and hardware environmental monitoring. An rack-mount solutions save customers valuable space in a multiserver environm

HP also is on the World-Wide Web. Besides product information, customers and can access drivers, utilities and technical tips and tricks via the World-Wide we href="http://hpcc998.external.hp.com:80/go/netserver">http://www.hp.com/ >, FTP, BBS and CompuServe.

HP NetServers

The HP NetServer LS Series is protected by HP's standard three-year, on-site, n

Backed by World-Class Service and Support

limited warranty. On-site service is available from HP service engineers or certi resellers and integrators. Upgrades for 4-hour response during business hours c seven-day 24-hour response are available from HP and HP-authorized resellers. telephone support for setup, installation and troubleshooting assistance is avail United States, Canada and Europe. HP also offers a range of optional support se multivendor network environments.

Pricing and Availability

The HP NetServer LS models range in street price from under $7,000 to about $ The NetServer LS 5/75 and 5/100 models are expected to be available through distributors and resellers on August 1. The NetServer LS 5/133 models are exp available on September 1. The quad models of the NetServer 5/100 and the 5/ available one month after each of these dates.

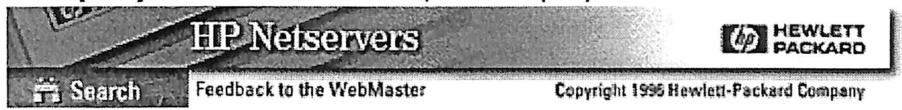
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HP also announced that its HP NetServers will demonstrate the software and hardware of strategic partners Microsoft, Intel and Sybase in those vendors' booths.

"Partnerships are crucial to delivering leading-edge technologies that bring customers the solutions that better meet their computing and networking needs," said Scott Stallard, general manager of HP's Network Server Division. "Through our partnerships, we are able to optimize the performance and manageability of the NetServer product line in order to give customers the

most competitive price and performance."

HP NetServers Featured in Microsoft Booth

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HP is working with other software partners to realize the full power and performance of the NetServer LS. With up to four processors and high-performance PCI-based I/O, the NetServer LS makes an ideal platform for symmetric multiprocessing operating systems such as Microsoft Windows NT, IBM OS/2 Warp, SCO OpenServer and the forthcoming NetWare SMP.

In particular, the robust architecture of the NetServer LS is well-suited for network servers running business-critical software products such as Microsoft BackOffice, including Microsoft SQL Server 6.0; Sybase SQL Server; and SAP-AG R/3. The NetServer LS will be a certified platform for the SAP-AG System R/3 integrated business logistics and coordination software running on Microsoft Windows NT, joining the existing NetServer LM systems.

HP NetServers Also Featured in Intel and Sybase Booths

Intel, also a strategic partner for HP, will demonstrate an HP NetServer LS running Intel's newly announced 133MHz Pentium processor (booth 2434).

"HP demonstrates time and again that it is able to build performance-leading equipment based on high-performance Pentium processors," said Carl Everett, senior vice president and general manager of the Microprocessor Products Group for Intel. "HP's unique approach to overall system design delivers the power of the Pentium processor to the user."

HP continues to work closely with Sybase to ensure optimized performance across the entire line of client/server database products. The HP NetServer LM Series will be on display at PC Expo in the Sybase booth (325).

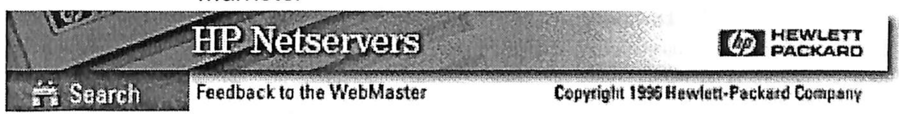
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HP Netserver Earns SAP Certification

HP Demonstrates SAP R/3 at Intel Pentium Pro Announcement in NYC

November 7, 1995

"With this new platform, we know that our joint customers can benefit from high price/performance and return on investment for their R/3 environment."

- Guenther Tolkmit, Vice President of Technology Marketing at SAP AG

Palo Alto, California - Hewlett-Packard Company today announced that the HP NetServer LS running R/3 on Microsoft(R) Windows NT Server has earned SAP R/3 certification. HP also said that it demonstrated a Pentium(tm) Pro-based machine running SAP on Microsoft Windows NT Server and Microsoft-SQL Server at Intel's Pentium Pro event today in New York.

The HP and SAP relationship offers business-management solutions for SAP-R/3 customers with Microsoft Windows NT running on the HP NetServer LS platform through joint development, service and support.

"HP is excited to have our flagship NetServer LS certified with R/3," said Duncan Campbell, worldwide marketing manager for HP's Network Server Division. "HP provides unparalleled levels of performance, availability and manageability in its NetServer systems. HP and SAP are committed to growing our relationship, especially as sales in the Windows NT Server market have grown at such a rapid rate."

"HP's NetServer is a welcome addition to the range of Windows NT Server platforms for R/3," said Guenther Tolkmit, vice president of technology marketing at SAP AG. "With this new platform, we know that our joint customers can benefit from high price/performance and return on investment for their R/3 environment."

SAP AG has a stringent certification program for the Windows NT Server platform, ensuring the highest-possible level of quality assurance, performance, reliability, support and service. SAP's development team works closely with HP and its customers to create new information-technology approaches to meet the unique demands of today's business. Partners must meet several criteria, including experience

in successful SAP implementations, a thorough working knowledge of SAP's products and an in-depth understanding of SAP's customers' business issues. HP contributes staff, equipment and technical resources to an HP/SAP Competence Center, which implements new business-management solutions developed by HP and SAP.

HP has been certified as a hardware-platform provider for SAP's integrated-business-solution R/3 software under Microsoft's Windows NT Server with an ORACLE or an ADABAS database. The Microsoft SQL Server database is in the process of being certified.

The certification of the HP NetServer LS as an optimum platform for SAP System R/3 applications running under Windows NT Server is the result of verification tests run by an independent system house, iXOS Software GmbH of Grasbrunn, Germany, on SAP's behalf. The verification tests were run on an HP NetServer LS running the following software: SAP System R/3 2.2 E, Microsoft Windows NT Server 3.50, Oracle 7.1.3 and Adabas 6.1.1.

HP offers unique solutions for its customers whose systems run SAP R/3 on Windows NT Server:

HP NetServers

- The HP NetServer LS Series provides the manageability, availability and performance technology necessary in today's business-critical environments. HP offers a complete line of PCI-based servers with fault-tolerant features that ensure data integrity and high system uptime.
- HP NetServer LS array models offer a dual-channel PCI disk-array controller. In addition to providing higher performance through the PCI bus and better processor utilization, this PCI array controller features the automatic hot-spare drive architecture, which in the event of a drive failure, automatically reconstructs data on a spare drive. The HP NetServer LS Series also includes an Automatic Server Restart feature, which automatically reactivates the server in the event of a network-operating-system crash.

SAP/HP Product Competence Center

- The business relationship between HP and SAP is demonstrated by the Competence Center in Waldorf, the largest of SAP's Competence Centers, where experts from areas such as application and technology, marketing and management of development products and programs for R/3 customers. The Competence Center provides R/3 project support, specific benchmark tests and solutions for specific problems.

Integrated Service and Support

- HP offers worldwide support for the Windows NT Server operating-system platform. HP's Microsoft Authorized Support Service Centers can provide support for Windows NT Server, Microsoft BackOffice and HP NetServers in more than 110 countries.
- HP NetServers are backed by HP's standard three-year, on-site, next-day limited warranty. On-site service is available from HP service engineers or certified resellers and integrators. Upgrades to a 4-hour response time during business hours or to a seven-day, 24-hour response time are available from HP and HP-authorized resellers. Free telephone support for setup, installation and troubleshooting assistance is available in the United States, Canada and Europe. HP also offers a range of optional support services for multivendor network environments.

Joint HP/SAP Success

HP has an outstanding relationship with SAP for HP NetServers running Windows NT Server and for HP 9000 servers running HP-UX(1). There are more than 1,700 worldwide HP and SAP UNIX system-based installations, more than 1,000 of which are end-user customer sites. Forty-two percent of SAP R/3 licenses run on the HP 9000 platform. Joint SAP and HP customers include Fortune 100 companies, such as Chevron, which uses HP hardware exclusively (a $10 million contract); Owens-Corning Fiberglas Corporation, HP's largest outsourcing contract at $50 million; and Mercedes-Benz. HP recently was awarded SAP's Award for Excellence for outstanding commitment to customer satisfaction across the entire HP server product line.

SAP provides flexible, integrated client/server

and mainframe-based business applications software that is compatible with most popular hardware, software and database platforms. More than 4,500 companies in 41 countries use SAP software to manage complex financial, manufacturing, sales and human resources requirements. SAP's R/3 client/server suite is installed in 3,400 sites worldwide and is accepted as the standard in key industries such as oil, chemicals, consumer packaged goods and high technology/electronics. Founded in 1972, SAP AG is headquartered in Walldorf, Germany and employs a workforce of more than 6,200 worldwide. SAP America is comprised of its corporate headquarters in Philadelphia, a Technology Development Center in Foster City, Calif., and sales support offices throughout North America, South Australia.

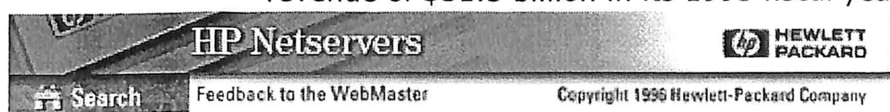
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Contact webmaster@www.hp.com with questions or problems with this service.



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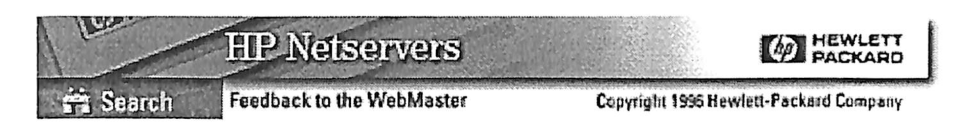
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AlphaServer 400
V96-2.2—23 Jan 1997
DIGITAL Systems and Options Catalog

Product Description

The AlphaServer 400 Mini Tower System is an Alpha microprocessor 233 MHz CPU system. This highly reliable product offers many server specific features, including management and security, with remote management possible via a simple serial link. For investment protection, customers get a choice of three popular operating systems: DIGITAL UNIX (V3.2C), OpenVMS (V6.2) and Microsoft Windows NT Server (V3.51). The product also has been designed to allow for future, seamless upgrades to faster Alpha processors.

The server supports up to 384 MB of industry-standard SIMM memory and has an integrated Fast Narrow SCSI-2 controller. The system enclosure supports five storage devices including a floppy diskette drive, CD-ROM, and hard drives. Six industry standard I/O expansion slots (two PCI, three ISA, and one PCI/ISA slot provide for options such as high-performance graphics, networking and SCSI adapters.

Advanced server management features are provided with all AlphaServer 400 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

All AlphaServer 400 systems come with a three year on-site warranty.

DIGITAL's ADVANTAGE-UPGRADE Program provides a cost-effective upgrade path for investment protection.

Step 1—Systems

- DIGITAL UNIX and OpenVMS Packaged and Base systems ordered with one 1.05 GB disk include factory-installed software (FIS).
- Windows NT Packaged and Base systems include Windows NT Server 3.51 plus 5-client media (CD-ROM) and license in shrink-wrapped package.
- Options that are factory installable, will be installed unless specified as **spares**.

AlphaServer 400 Systems include

- Alpha microprocessor 21064A 233-MHz CPU
- 512-Kbyte onboard secondary cache
- Mini tower enclosure which includes:
  - Six expansion slots: 2 PCI, 3 ISA, and 1 PCI/ISA combination slot
  - Integrated PCI-based Fast Narrow SCSI-2 controller with DMA and external SCSI-2 connector
  - Six SIMM memory slots
  - Five storage slots, including:
  - One dedicated diskette drive slot,
  - Three 5.25-inch slots for removable media or hard disk drives, and
  - One internal 3.5-inch hard disk drive slot
  - 300-Watt power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
  - PS/2 style keyboard port and mouse port
- 32 MB of memory (Packaged systems only)
- 1.44 MB diskette drive in dedicated slot
- High-performance Ethernet adapter—uses one PCI slot (included in Packaged systems only)
- 3-button mouse
- Hardware documentation (Americas and AP orders only)
- Hardware Warranty: Three-year on-site*
- Software Warranty: 90-day SPD conformance with advisory telephone support*
- Windows NT Server plus 5-client access, V3.51 media kit **or**
- DIGITAL UNIX 2-user base license and DIGITAL NAS Base Server 200 license, and Server Extension License **or**
- OpenVMS base license with System Manager license and DIGITAL NAS Base Server 200 license

* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

Packaged Systems

- Packaged systems ordered in the Americas and Asia Pacific (AP) include 120 V power cord packaged with keyboard, and English hardware documentation.
- Select country-specific power cord, keyboard and hardware documentation for all Packaged systems ordered in Europe.
- All Packaged systems include high-performance PCI-based Ethernet adapter—uses one PCI slot
- Windows NT Packaged systems include entry level graphics (PB2GA) 1280 x 1024 x 256 colors, 72 Hz—uses one PCI slot

Order Number	Operating System	Memory	Graphics	Monitor	1.05 GB Hard Drive	600 MB CD-ROM	Ethernet
PB523-AA/AB	DIGITAL UNIX	32 MB	Recommended	Recommended	Included	Included	Included
PB524-AA/AB	OpenVMS	32 MB	Recommended	Recommended	Included	Included	Included
PB525-AA/AB	Windows NT Server	32 MB	Included	Required	Included	Included	Included

Note: xA = 120V and xB = 240V

Step 1—Systems (continued)

Base Systems

- **DIGITAL UNIX and OpenVMS Base systems require:**
  - Minimum of 32 MB memory
  - One hard disk drive
  - Country-specific power cord
- **Windows NT base systems require:**
  - Minimum of 32 MB memory
  - One hard disk drive, one CD-ROM Drive
  - Graphics Option
  - Monitor and keyboard
  - Country-specific power cord
- Graphics option, monitor, and keyboard for DIGITAL UNIX and OpenVMS base systems are available as options if required

Note: Mandatory items **must** be on purchase order at initial order acceptance.

Order Number	Operating System	Memory	Graphics	Monitor	Hard Disk Drive 600 MB	CD-ROM	Ethernet
PB51C-AA	DIGITAL UNIX	Mandatory	Recommended	Recommended	Mandatory	Recommended	Recommended
PB51C-BA	OpenVMS	Mandatory	Recommended	Recommended	Mandatory	Recommended	Optional
PB51C-CA	Windows NT Server	Mandatory	Required	Required	Mandatory	Mandatory	Optional

Step 2—Memory

- Six SIMM slots support 3 memory options (3 SIMM pairs) for maximum of 384 MB. Memory pairs can be mixed.
- Packaged systems include 32 MB memory, one MSP01-AC. Base systems require minimum of 32 MB
- System maximum of 384 MB can only be obtained by starting with Base system and three MSP01-AE 128 MB memory options.

MSP01-AA 8 MB (2 x 4 MB 70ns SIMMs)
MSP01-AB 16 MB (2 x 8 MB 70ns SIMMs)
MSP01-AC 32 MB (2 x 16 MB 70ns SIMMs)
MSP01-AD 64 MB (2 x 32 MB 70ns SIMMs)
MSP01-AE 128 MB (2 x 64 MB 70ns SIMMs)
DJ-ML200-AA PCI-based 2-MB PrestoServe I/O performance enhancement option for DIGITAL UNIX systems only, maximum 1 per system

Step 3—Monitors

- Windows NT Packaged systems include video adapter that support 1024 x 768 and 1280 x 1024 resolution, 72 Hz monitors. Systems require a graphics monitor to run all functions.

VRC15-KA/K4 15" (13.9" viewable image size) high-resolution color monitor with Light Gray enclosure. Flat-square CRT with 0.28 mm dot pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1024 x 768 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 1.4 meter HD15 male to male video cable. Select -KA for Northern Hemisphere or -K4 for Southern Hemisphere operation. If purchased in North America, -KA includes 120V power cord, otherwise power cords for -KA and -K4 must be ordered separately.

VRT17-PA/P4 17" (16.0" viewable image size) high-resolution color monitor with Light Gray enclosure. Trinitron aperture grille CRT with 0.26mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1280 x 1024 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -PA for Northern Hemisphere or -P4 for Southern Hemisphere operation. If purchased in North American, -PA includes 120V power

cord, otherwise power cords for -PA and -P4 must be ordered separately.

VRC21-LA/W4 21" (19.6" viewable image size) ultra high-resolution color monitor with Light Gray enclosure. Diamondtron aperture grille CRT with 0.30 mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1600 x 1200 at 75Hz NI refresh rates. On Screen display (OSD). Stereo viewing compatible. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -LA for Northern Hemisphere, or -W4 for Southern Hemisphere operation. If purchased in North America, -LA includes 120V power cord, otherwise power cords for -LA and -W4 must be ordered separately.

Step 4—Storage

- Select storage devices if required.
- Integrated Fast Narrow SCSI-2 controller supports maximum of seven narrow devices, four of which may be internal.
- Maximum Integrated SCSI bus length cannot exceed 3.0 meters.

Step 4a—Internal Storage

- System enclosure supports five narrow SCSI storage devices: One dedicated diskette drive slot, three front accessible 5.25-inch slots for removable media (tapes or CD-ROM) or hard drives, and one internal 3.5-inch hard drive slot. See system diagram.
- Packaged systems include: one 1.44 MB diskette drive, one 1.05 GB narrow SCSI hard drive, and one CD-ROM.
- Base systems include one 1.44 MB diskette drive.
- Base systems require a minimum of one hard disk drive.
- Windows NT Base systems require one CD-ROM drive.
- Software distribution is only available on CD-ROM.

Removable Media Devices

PBXRD-CA 600 MB 5.25-inch half-height dual-speed CD-ROM drive (RRD45)
PBXTZ-AA 2.0 MB 5.25-inch half-height QIC tape drive (TZK11)
PBXTL-DA 8.0 MB 5.25-inch half-height 4-mm DAT drive (TLZ09)

Internally Supported Hard Drives

PBXRZ-BB 540 MB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ25F-E)
PBXRZ-EB 1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ26N-E)
PBXRZ-HB 2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ28M-E)
PBXRZ-JB 2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D-E)
PBXRZ-NA 4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive (RZ29B-E)

Note: Wide drives installed in system enclosure require a wide SCSI controller and BC25V-1A cable.

PBXRW-EB 1.05 GB 16-bit wide 5400 RPM 3.5 x 1" half-height disk drive (RZ26N-W)
PBXRW-HB 2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI disk drive (RZ28M-W)
PBXRW-JB 2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D-W)
PBXRW-NA 4.3 GB 16-bit wide 7200 RPM 3.5 X 1.6" SCSI disk drive (RZ29B-W

Step 4b—External Expansion

- Systems support three external devices on integrated PCI-based Fast Narrow SCSI-2 controller when four devices are installed in system enclosure.
- Seven external narrow SCSI devices are supported on integrated Fast Narrow SCSI-2 controller if storage devices are not installed in system enclosure.
- Select additional PCI-based wide or narrow SCSI-2 controllers if additional external storage is required.
- System supports a maximum of three PCI-based SCSI-2 controllers (**Note:** Packaged systems have only two PCI slots available, due to embedded PCI-based Ethernet controller.)
- PCI-based SCSI-2 controllers supports 7 additional external devices.

Controllers

KZPAA-AA PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller
  BN21H-xx Connects from KZPAA-AA to BA353 narrow storage enclosure

KZPSA-BB PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only.
  BN21K-01 Connects from KZPSA to DWZZA-VA in narrow BA353, or DWZZB-VW in wide BA356/BA346 storage enclosure

Step 4b—External Expansion *(continued)*

Controllers

KZPSC-AA* One-port PCI backplane RAID Fast Wide Single Ended (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Supports external disks only.

BN31S-1E Connects from KZPSC-AA to BA346/BA356 wide storage enclosure

BN31L-1E Connects from KZPSC-AA to BA353 narrow storage enclosure

KZPSC-BA* Three-port PCI backplane RAID (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Supports external disks only.

BN31K-0E SCSI cable/bulkhead assembly kit for KZPSC-BA; required for connection to third port; uses one PCI bulkhead slot

BN31S-1E Connects from KZPSC-BA to BA346/BA356 wide storage enclosures

BN31L-1E Connects from KZPSC-BA to BA353 narrow storage enclosure

KFPSA-AA PCI-based single-DSSI controller (OpenVMS systems only). See Step 4d DSSI cables.

* See Storage Devices for additional information on StorageWorks RAID Array 230 systems.

External Tabletop Tape Expansion

- Tabletop expansion units include North American power cord; order country-specific power cord for 240 V use.
- Each tabletop expansion unit requires 3-foot SCSI cable (BC09D-03)

TLZ09-DB 8.0 GB 5.25-inch half-height 4 mm DAT tape drive

RRD45-FA 600 MB 5.25-inch half-height quad-speed CD-ROM

External Disk Expansion

- BA353 expansion units are supported on wide and narrow SCSI controllers. Devices operate in narrow mode when BA353 is connected to a Fast Wide SCSI controller.
- BA356 and BA346 expansion units are supported on Fast Wide SCSI controllers.

StorageWorks Modular Storage Options

BA353-AA StorageWorks 8-bit **Narrow** Desktop expansion unit, supports up to three 3.5" narrow hard disk drives, includes 120 V power cord. Not supported with RAID controllers.

BA356-KC StorageWorks 16-bit **Wide** Pedestal expansion unit includes BA356 basic shelf, BA35X-HF 150-W universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.

BA346-KB StorageWorks 16-bit **Wide** Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to nine devices, two 5.25" narrow and seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.

DWZZA-VA Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end.

DWZZB-VW Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide or Fast Narrow Single-Ended SCSI-2 on other end.

Externally supported SCSI devices

SCSI devices may be purchased separately and are customer installable.

RZ26N-VA 1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive

RZ28M-VA 2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive

RZ28D-VA 2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive

RZ29B-VA 4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive

Step 4b—External Expansion *(continued)*

Externally supported SCSI devices

RZ26N-VW 1.05 GB 16-bit wide 5400 RPM 3.5 x 1" half-height disk drive

RZ28M-VW 2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI disk drive

RZ28D-VW 2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI disk drive

RZ29B-VW 4.3 GB 16-bit wide 7200 RPM 3.5 X 1.6" SCSI disk drive

RRD45-VA 600 MB 5.25-inch half-height compact disk drive

RRD45-VU* 600 MB 5.25-inch half-height compact disk drive

* 600 MB CD-ROM drive can be added to RRD45-VA or TZK11-VA for a total of two 5.25-inch drives in one carrier.

Step 5—Graphics Adapters and Multimedia Options

Windows NT systems include entry-level (PB2GA-JB) graphics adapter.

Order Number

Description Supported

Operating System Bus Slots Required/ Recommended Slot

PBXGA-AA[1] ZLXp-E1 8-plane, PCI graphics accelerator,
2 Mpixels, 1280 x 1024 x 256 colors, 72 Hz DIGITAL UNIX
OpenVMS One PCI/1, 2, 3a

PBXGA-BA1 ZLXp-E2 24-plane, PCI graphics accelerator.
2 Mpixels, 1280 x 1024 x 256 colors, 72 Hz DIGITAL UNIX
OpenVMS One PCI/1, 2, 3a

PBXGA-CA1 ZLXp-E3 24-plane, PCI graphics accelerator, 24-bit Z-buffer, 4 Mpixels, 1280 x 1024 x 256 colors, 72 Hz DIGITAL UNIX
OpenVMS One PCI/1, 2, 3a

PBXGA-AN2 ZLXp-E1 8-plane, PCI graphics accelerator,
2 Mpixels, 1280 x 1024 x 256 colors, 72 Hz Windows NT One PCI/1, 2, 3a

PBXGA-BN2 ZLXp-E2 24-plane, PCI graphics accelerator,
2 Mpixels, 1280 x 1024 x 256 colors, 72 Hz Windows NT One PCI/1, 2, 3a

PBXGA-CN2 ZLXp-E3 24-plane, PCI graphics accelerator, 24-bit Z-buffer, 4 Mpixels, 1280 x 1024 x 256 colors, 72 Hz Windows NT One PCI/1, 2, 3a

PB2GA-JB TRIO64 S3 PCI graphics accelerator, 1 MB DRAM
1280 x 1024 x 256, 72 Hz DIGITAL UNIX
OpenVMS
Windows NT3 One PCI/1, 2, 3a

1 Multi-screen graphics options for DIGITAL UNIX and OpenVMS systems. Options require DIGITAL Open3D media which is included in factory installed software (FIS)

2 Graphics options include Graphics Support Services Software for Windows NT license, media, and documentation.

3 PB2GA-JB graphics accelerator is included in Windows NT Packaged systems

Multimedia Options

AVA01-AA Window sound system; compatible sound card, headset and microphoneDIGITAL UNIX
OpenVMS
Windows NT One PCI/1, 2, 3a

AVH01-AA Headset and microphone for AVA01 sound card DIGITAL UNIX
OpenVMS
Windows NT One PCI/1, 2, 3a

AV301-AA FullVideo Supreme for all systems DIGITAL UNIX
OpenVMS
Windows NT

AV321-AA FullVideo Supreme JPEG for all systems DIGITAL UNIX
OpenVMS
Windows NT

AVC00-AA Toshiba camera, North America DIGITAL UNIX
OpenVMS
Windows NT

Step 7—Communications and Miscellaneous Adapters

- Packaged systems include high-performance Ethernet—Thick wire, Twisted Pair, ThinWire)

Order Number

Description Supported

Operating Systems Bus Slots Required / Recommended Slot

DE205-AC ISA-based EtherWORKS 3 Network Interface Card DIGITAL UNIX
OpenVMS
Windows NT One ISA/3a, 4, 5, 6

DE435-AA PCI based High-performance Ethernet. Select AUI (Thick wire), 10BaseT (Twisted Pair) or ThinWire networking cable BNE4G-02 for AUI
BN26K-xx for 10BaseT (twisted pair)
BC16M-xx for ThinWire DIGITAL UNIX
OpenVMS
Windows NT One PCI/1, 2, 3a

DE500-XA	PCI-based Fast Ethernet network interface card	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-AB1	PCI-based DEC FDDI controller, Single Attachment	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-DB1	PCI-based DEC FDDI controller, Dual Attachment	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-UB1	PCI-based DEC FDDI (UTP) controller	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DGLPB-AB	PCI-based ATMworks 350 adapter	DIGITAL UNIX V3.2D-1 Windows NT 3.51	One PCI/1, 2, 3a
PBXNP-AA1	PCI-based Token Ring adapter, no boot support.	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
CXI01-AA	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 64 lines.	DIGITAL UNIX Windows NT	One ISA/3b, 4, 5, 6
CXI01-AD	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 224 lines.	DIGITAL UNIX Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AA	ISA-based Two Port Synchronous Communications controller with interface support for EIA-232/V.24/V.28,	Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AB	ISA-based Two Port Synchronous Communications controller with interface support for V.35	Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AC	ISA-based Two Port Synchronous Communications controller with interface support for X.21 and EIA-530	Windows NT	One ISA/3b, 4, 5, 6
DIIAA-AA	ISA-based ISDN terminal adapter (U.S.)	Windows NT	One ISA/3b, 4, 5, 6
DIIAA-AB	ISA-based ISDN terminal adapter (non-U.S.)	Windows NT	One ISA/3b, 4, 5, 6
PBXDF-AA	Modem 14.4K	Windows NT	One ISA/3b, 4, 5, 6

1 DIGITAL UNIX and OpenVMS systems require driver floppy.

Step 8—Printers

The AlphaServer 400 4/233 includes two serial ports and one bi-directional parallel port on rear of system enclosure. Either port may be used as a printer port depending on printer type.

Step 9—Software

Windows NT Servers

- Windows NT packaged and Base systems include Windows NT Server plus 5-client access V3.51 media (CD-ROM) and license in shrink-wrapped package. Order documentation kit if required.

QA-23CAA-GZ Windows NT Server documentation kit

DIGITAL UNIX Concurrent Use Licenses

Software Processor Code = E

Select user licenses and additional software as required. Media and documentation is recommended for first system on site.

DIGITAL UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AE-AA DIGITAL UNIX Traditional unlimited user license
QL-MT6AE-AA DIGITAL UNIX server extension license
QL-MT5AE-AA DIGITAL UNIX C developer's extension license

DIGITAL UNIX Media and Documentation

QA-MT4AA-H8 DIGITAL UNIX media and documentation (end user, developer, server) on CD-ROM

QA-MT4AA-GZ DIGITAL UNIX full hardcopy documentation
QA-MT4AB-GZ DIGITAL UNIX end user documentation
QA-MT5AA-GZ DIGITAL UNIX developer's documentation
QA-MT6AA-GZ DIGITAL UNIX server extension documentation

DIGITAL UNIX Layered Products (CD-ROM)

DIGITAL UNIX systems include Multimedia Services License, order media and documentation separately. Media and documentation for Multimedia Services is included in DIGITAL UNIX Layered Products CD-ROM.

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

Internet for AlphaServers

QB-4GQAA-KA Internet AlphaServer Software (USA and Canada Only)
QB-4GQAA-KB Internet AlphaServer Software (International)

DIGITAL UNIX Logical Storage Manger

QL-2GVAE-AA DIGITAL UNIX Logical Storage Manager License
QT-2GVAE-AA DIGITAL UNIX Logical Storage Manger Product Support Services

POLYCENTER NetWorker Save and Restore Licenses

QL-2ALAE-AA POLYCENTER NetWorker Save and Restore Server License
QL-3P2AE-AA POLYCENTER NetWorker Save and Restore Archive Server Add-on License. **Note:** NetWorker Server License is a requirement for Archive License.

Step 9—Software *(continued)*

DECsafe Available Server for DIGITAL UNIX

QL-05SAE-AA DECsafe ASE U/A Traditional license
QB-05SAE-AA DECsafe ASE U/A Traditional license and configuration guide

Server Extension License

QL-MT6AE-AA DIGITAL UNIX server extension license
QL-MT5AE-AA DIGITAL UNIX C developer's extension license

DIGITAL NAS Base Server 200 for DIGITAL UNIX

QL-36MAE-RA DIGITAL NAS Base Server 200 for DIGITAL UNIX Update license
QT-36MAE-L9 DIGITAL NAS Base Server 200 for DIGITAL UNIX Layered Product Support Service

DECnet for DIGITAL UNIX

QL-MTJAE-AA DECnet/OSI end-system license for DIGITAL UNIX
QL-MTKAE-AA DECnet/OSI extended function license for DIGITAL UNIX

OpenVMS Concurrent Use Licenses

OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K OpenVMS Concurrent Use 256-user license
QL-MT2AE-AA OpenVMS Traditional unlimited user license

OpenVMS Media and Documentation—required for first system on site

QA-MT1AA-H8 OpenVMS V6.2 media and documentation on CD-ROM
QA-MT1AP-H8 OpenVMS V6.1-1H2 media and documentation on CD-ROM
QA-MT1AH-GZ OpenVMS hardcopy documentation

OpenVMS Layered Products (CD-ROM)

QA-03XAA-H8 Layered products media and documentation for OpenVMS on CD-ROM

DIGITAL NAS Base Server 200 for OpenVMS

QL-23EAE-RA DIGITAL NAS Base Server 200 for OpenVMS upgrade license
QT-23EAE-L9 DIGITAL NAS Base Server 200 for OpenVMS Layered Product Support Service

DECnet for OpenVMS

QL-MTGAE-AA DECnet extended function license for OpenVMS
QL-MTHAE-AA DECnet end-system to extended function upgrade license for OpenVMS

Step 9—Software *(continued)*

Support Services Software for Microsoft Windows NT

ZLXp-Ex graphics options for Windows NT servers include the following license, media and documentation.

QM-356AA-AA License for ZLXp-Ex Support Services Software for Microsoft Windows NT
QB-356AA-SA ZLXp-Ex Support Services Software for Microsoft Windows NT—license, media (diskette) and documentation
QA-356AA-GZ ZLXp-Ex Support Services Software for Microsoft Windows NT (documentation only)

Step 10—Power Cords, Keyboards, and Documentation

- Packaged systems ordered in the Americas and Asia Pacific (AP) include 120 V U.S. power cord packaged with keyboard, and English hardware documentation. Select country-specific power cord, keyboard and documentation for all Packaged systems ordered in Europe.
- Base systems **require** country-specific power cord
- Windows NT Base systems **require** a keyboard. Selection of keyboard is optional for DIGITAL UNIX and OpenVMS Base systems.
- Packaged and Base systems include mouse.
- LK471-xx are 101/102 key PC style keyboards. LK461-xx are 108 key VT style keyboards.

Power Cord	PC style keyboards	VT style keyboards	Country
BN19P-1K	LK471-A2	LK461-A2	North America, Japan (English)
BN19C-2E	LK471-AB	LK461-AB	Belgium (French)
BN19K-2E	LK471-AD	LK461-AD	Denmark
BN19C-2E	LK471-AP	LK461-AP	France
BN19C-2E	LK471-AF	LK461-AM	Sweden (Finnish)
BN19C-2E	LK471-AG	LK461-AG	Germany
BN19Z-2E	LK471-AI	LK461-AI	Italy
BN19C-2E	LK471-AN	LK461-AN	Norway
BN19C-2E	LK471-AV	LK461-AV	Portugal
BN19C-2E	LK471-AS	LK461-AS	Spain
BN19E-2E	LK471-AK	LK461-AK	Switzerland (French)
BN19A-2E	LK471-AE	LK461-AA	UK, Ireland
BN18L-2E	LK471-AT	LK461-AT	Israel (Hebrew)
BN19S-2E	LK471-AA	LK461-AA	Africa, India (English)
BN19H-2E	LK471-AA	LK461-AA	Australia, New Zealand (English)

Mouse—included in all Packaged and Base systems

PCXWS-AA PS/2 compatible 3-button Mouse

User Documentation—select for 240 V systems

User Documentation

EK-PCSVA-UI User Documentation—English
EK-PCSVJ-UI User Documentation—Japanese

Step 11—Hardware and Software Supplemental Support Services

Hardware—Americas and Asia Pacific only

- Systems include three-year, on-site, 24 hr. response hardware warranty.
- Select optional Hardware Supplemental Support Services if required.

FM-CH4HR-36 Years 1-3, 5 x 9, 4 hour response
FM-CH4HR-48 Years 1-4, 5 x 9, 4 hour response
FM-CH4HR-60 Years 1-5, 5 x 9, 4 hour response

FM-CH512-36 Years 1-3, 5 x 12, 4 hour response
FM-CH512-48 Years 1-4, 5 x 12, 4 hour response
FM-CH512-60 Years 1-5, 5 x 12, 4 hour response

FM-CH616-36 Years 1-3, 6 x 16, 4 hour response
FM-CH616-48 Years 1-4, 6 x 16, 4 hour response
FM-CH616-60 Years 1-5, 6 x 16, 4 hour response

FM-CH724-36 Years 1-3, 7 x 24, 4 hour response
FM-CH724-48 Years 1-4, 7 x 24, 4 hour response
FM-CH724-60 Years 1-5, 7 x 24, 4 hour response

FM-CHXHW-48 Year 4, 5 x 9, next day response, on-site
FM-CHXHW-60 Years 4&5, 5 x 9 next day response, on-site

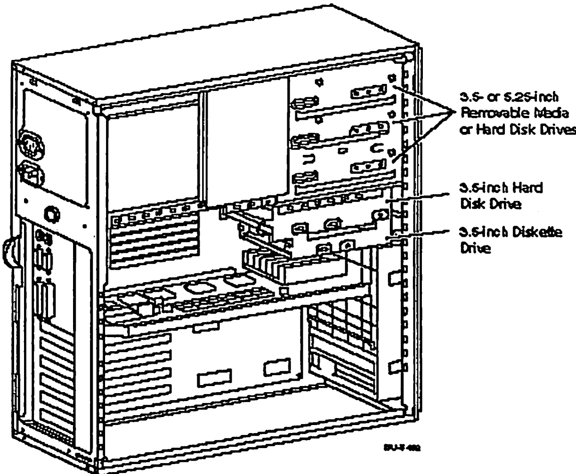
Software—Americas and Asia Pacific only

- Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.
- Software Supplemental Support Services for DIGITAL UNIX includes advisory and remedial software support with new version license rights for DIGITAL UNIX and NAS 200.
- Software Supplemental Support Services for OpenVMS include advisory and remedial software support with new version license rights for OpenVMS and NAS 200.
- Software Supplemental Support Services for Windows NT include advisory and remedial software support for the time period indicated

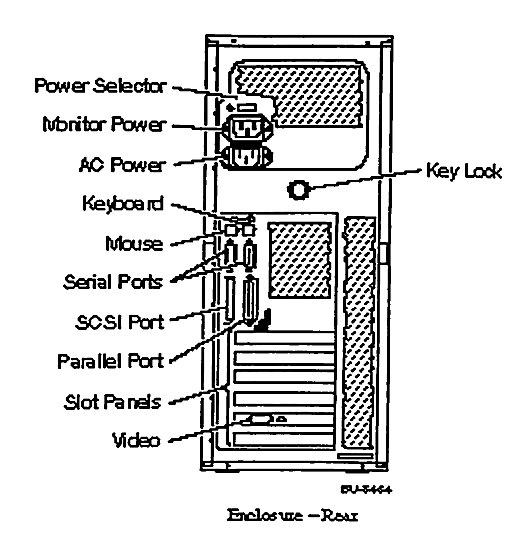
FM-MKOSF-12 1 year Software Supplemental Support Services for **DIGITAL UNIX** systems
FM-MKOSF-36 3 year Software Supplemental Support Services for **DIGITAL UNIX** systems
FM-MKOSF-60 5 year Software Supplemental Support Services for **DIGITAL UNIX** systems
FM-MKVMS-12 1 year Software Supplemental Support Services for **OpenVMS** systems
FM-MKVMS-36 3 year Software Supplemental Support Services for **OpenVMS** systems
FM-MKVMS-60 5 year Software Supplemental Support Services for **OpenVMS** systems
FM-WNTN3-12 1 year Software Supplemental Support Services for **Windows NT** systems
FM-WNTN3-36 3 year Software Supplemental Support Services for **Windows NT** systems
FM-WNTN3-60 5 year Software Supplemental Support Services for **Windows NT** systems

Step 11a—Hardware and Software Supplemental Support Services (Europe only)

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.



AlphaServer 400 System Diagram



Enclosure – Rear

Specifications
PCI 132 MB/second
ISA 16 MB/second
Fast SCSI-2 bus 10 MB/s transfer rate
Ethernet DE435-xx 10-Mbit/s Twisted Pair/Thin Wire and AUI thick wire

Power Requirements
Line voltage 120/240 V
Voltage tolerance 88-132/176-264 V
Frequency single phase 50/60 Hz
Frequency tolerance 47-63 Hz
Maximum running current 8.0A/4.0A
Maximum power consumption 300 W

Operating Environment
Operating temperature 10° to 40° C (50° to 104° F)
Operating humidity
Maximum wet bulb 20% to 80% relative humidity
40° C (104° F)
Storage temperature -20° C to 65° C (-4° F to 149° F)
Storage Humidity
Maximum wet bulb 10% to 90% relative humidity
65° C (149° F)
Maximum altitude
Operating
Nonoperating
2,438 m (8,000 ft) maximum
4,876 m (16,000 ft) maximum
Nonoperating shock 30G, 25 ms halfsine

Physical Characteristics
Height 43 cm (17 inches)
Width 18 cm (7 inches)
Depth 43 cm (17 inches)
Weight 12+ kg (28+ lb)

Prestige Model 800 "On-line" UPS

For complete protection, UPS products should be used with data line surge protectors.

4N-AEABD-AF For 120 Vac, 50 or 60 Hz systems
Includes detachable 6-foot input power cord with 5-15P plug and four NEMA 5-15R output receptacles.
4N-AEABD-BF For 240 Vac, 50 or 60 Hz systems
Selectable 220, 230 or 240V ac output. Uses system power cord for detachable IEC 320 input connection at UPS.

Unit has 3 IEC 320 receptacles and includes two output jumpers with IEC 320 connectors to connect to system.
4N-GA249-AB Surge Protectors for 2 wire modem
4N-GA249-CA Surge Protectors for 10BaseT
4N-GA510-BF Surge Protectors for ThinWire
4N-AEAEO-PA/PB Optional hot-swap power pass with built in surge protected outlets including one extra off-line for laser printer. -PA for 120 V, -PB for 220 V models.
4N-AEWAR-G1 5 year vendor on-site exchange warranty upgrade (available in Intercontinental U.S. only at time of purchase).
Monitoring and Unattended Shutdown Software for above UPS systems only

- Include cables, media and documentation.
- SNMP Network connectivity adapters (4N-AEAEO-DA/DC) Twisted Pair/ThinWire are available.

4N-AEAES-AA/AB Windows NT for Alpha and Intel x86
4N-AEAES-AK DIGITAL UNIX
4N-AEAES-EM OpenVMS

UNIVERSIDAD DE PUERTO RICO
Recinto de Cayey
Decanato de Asuntos Académicos
Centro Académico de Cómputos

31 de enero de 1997

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PROPUESTA PARA SERVIDOR DE SERVICIOS MULTIPLES

Concepto y Justificación: En el Centro Académico de Cómputos queremos actualizar el servicio de correo electrónico que ofrecemos a la comunidad universitaria por uno de interfase gráfica, la cual entendemos es bien amigable para cualquier tipo de usuario, sin importar su expertise en el uso de los sistemas de computadoras. El servicio que regularmente utilizan los estudiantes y profesores del Recinto de Cayey es uno basado en una computadora modelo Vax 3300 manufacturada por la compañía Digital, de tecnología con alrededor de diez (10) años de antigüedad y cuya interfase está basada solamente en texto. Ésta es poco amigable para cualquier usuario, independientemente de su conocimiento en el uso de sistemas computadorizados de información. Queremos implantar un sistema de correo electrónico que sirva tanto a nuestros usuarios regulares como a clientela potencial que en ocasiones se resiste al uso de servicios disponibles porque les resulta difícil su aprendizaje y uso. Es de nuestro conocimiento que los programados de computadoras con interfase gráfica son fáciles de aprender a utilizar, lo cual aseguraría su uso regular, especialmente por aquellas personas con cierta resistencia, por una razón u otra, al uso de las computadoras. Queremos, en particular, que nuestra Facultad haga mayor uso de la infraestructura de telecomunicaciones que actualmente tenemos y la que se implantará a corto plazo. (Durante el semestre académico en curso se conectarán la mayoría de nuestros edificios por medio de una red de fibra óptica, la cual formará parte de Internet.) Queremos que haya comunicación continua entre el estudiante y el profesor, de suerte que ésta no se limite principalmente a las horas de oficina del profesor y en la sala de clase. En particular, el estudiante (tímido o no) le podrá comunicar a su profesor cualquier duda, pregunta, comentario o sugerencia. Contemplamos a corto o mediano plazo que este servicio también esté disponible para su uso fuera de los predios del CUC, vía modem. Se seguirá el modelo cliente/servidor de sistemas de información para implantar éste y otros servicios dirigidos principalmente a nuestra Facultad y estudiantado. La programación servidor se instalará en una microcomputadora con las especificaciones indicadas a continuación.

Microcomputadora Servidor

- Cantidad: Una unidad
- *HP Multiprocessor server* ($15,000.00, aprox.)
    - Se incluye documentación y justificación. Ver anejos.

Servicios que ofrecerá la computadora servidor:

- servidor Web
    - profesores pueden montar sus propias páginas para incluir material de sus cursos y establecer comunicación con sus estudiantes
    - kiosko de información para los estudiantes
        - catálogo CUC
        - calendario académico
        - horario exámenes finales
        - reglamentos estudiantiles
        - cartelera electrónica
        - tablón de edictos electrónico
        - guía telefónica local y sistema UPR
        - información sobre programas y proyectos existentes en el CUC
            - Programa de Honor
            - Servicios Educativos
            - Upward Bound
            - MBRS
            - Howard Hughes
            - Estudios de la Mujer
            - Título III
            - Otros servicios
                - información sobre becas y ayudas económicas
- servidor ftp (transferencia de archivos)
    - se montará un banco de programados educativos
        - *shareware*
        - *freeware*
        - dominio público
    - utilidades
        - *shareware*
        - *freeware*
        - dominio público

Programación a ser instalada en la computadora servidor:

- Servidor Windows NT versión 4.xx English Int'l AE CD ROM
    - Costo: $383.29
- Servidor de correo electrónico
    - Una posibilidad es BackOffice Server 2.0 English Int'n AE CD
        - Costo: $1,204.63
- Servidor WWW
    - Existen versiones académicas libre de costos
- Servidor ftp
    - Costo aproximado: $25.00
    - Es probable conseguir versiones académicas libres de costo

Someto esta información para su consideración. De tener su visto bueno, solicito se identifiquen los fondos necesarios para su pronta implantación.

Se incluyen varios anejos.

En la industria, la tendencia es migrar de minicomputadoras y mainframes a redes locales de computadoras. Las computadoras disponibles hoy dia tienen mas poder que las minicomputadoras de varios años atras. Como punto central, las redes locales giran alrededor de un "servidor". Este servidor brinda servicios de almacenamiento de archivos, servicios de impresion y aplicaciones ademas de acceso a bases de datos. Un buen servidor debe ser lo suficientemente grande y rapido como para poder dar servicio a cientos de usuarios al mismo tiempo.

Una alternativa disponible en el mercado es la serie LS de servidores Hewlett-Packard. La serie LS es la linea de mas alto rendimiento y mayor capacidad de expansion disponible. Servidores LS se pueden configurar con 1, 2, 3 o 4 procesadores Intel Pentium con velocidades desde 75 MHZ hasta 133 MHZ. Ademas acepta hasta 768 MB de memoria. Hewlett-Packard tiene disponible un UPS (uninterruptible power supply) que se intregra mediante programado al server para monitoreo y desactivacion en caso de emergencia.

La serie LS es completamente modular. Los procesadores estan contenidos en dos tarjetas separadas. Esto permite que se adquiera un servidor pequeño ,con un procesador, y se le sigan añadiendo procesadores segun aumente la demanda de servicios. Ademas permite reemplazar los procesadores por unidades mas avanzadas (ej. Pentium Pro) a un costo minimo, preservando la inversion en equipo, programado y tiempo. Otros equipos contienen los procesadores como parte del tablero principal, lo que impide o hace imposible aumentar o actualizar las capacidades del equipo a un costo bajo o sin tener que cambiar la unidad completa. La memoria tambien esta contenida en tarjetas separadas. Al igual que el procesador, se puede adquirir la memoria necesaria inicialmente y luego añadir mas memoria o tarjetas .

El almacenamiento masivo de informacion es un recurso importante en estos equipos. La serie LS cuenta con 6 bahias de discos duros "hot swap" y controladores RAID nivel 0,1, 5 y 6. Las bahias "hot swap" permiten cambiar discos duros defectuosos sin tener que apagar el equipo. La tecnologia RAID (redundant array of independent disks) se encarga de tener varias copias de la

informacion en varios discos. Estas dos tecnologias mantienen redundancia y seguridad de la informacion todo el tiempo.

Internamente, la serie LS cuenta con 8 ranuras de expansion. Cuatro de estas ranuras son EISA, 2 son PCI y 2 son compartidas entre EISA y PCI. La tecnologia EISA acepta tarjetas de expansion comunes de 16 bits y de 32 bits. Las ranuras PCI se estan convirtiendo en el estandar de tarjetas de expansion de 32 bits de alta velocidad y acceso directo al procesador.

El equipo incluye programacion para su facil manejo, gerencia e instalacion como parte del precio. Este programado ayuda tanto al manejo del servidor, manejo de la red local que lo rodea como en la instalacion del sistema operativo seleccionado entre Windows NT Server SMP, Novell Netware o SCO MPX. Los sistemas operativos antes mencionados no requieren licencias o contratos de mantenimiento anuales, costos recurrentes relacionados con equipos de otras marcas.

La garantia es de tres (3) años "on site" sin costo adicional.

Un ejemplo de una configuracion lo es:

HP netserver LS/2 5/100

- 2 procesadores Pentium a100 mhz
- 64 MB Ram
- 4.2 GB "Hot Swap hard disk" (dos discos para sistemas espejo)
- UPS sincronizado con el servidor
- Unidad de cinta DAT, CD ROM 4x
- Monitor VGA
- $22.000.00 aprox.